

# SEQUENCE LISTING

<110> Ausubel, Fredrick M.  
Garsin, Danielle  
Mylonakis, Eleftherios  
Calderwood, Stephen B.  
Sifri, Costi

<120> Enterococcal Virulence Factors

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<150> 60/306,212

<151> 2001-07-18

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<213> Enterococcus faecalis

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<213> Enterococcus faecalis

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 <212> PRT  
 <213> Enterococcus faecalis

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Leu Leu Asn Asp Pro Asn Gly Phe Ser Tyr Phe Asn Asn Gln Trp His
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Leu Phe Tyr Gln Ala Phe Pro Phe Gly Ser Val His Gly Leu Lys Ser
65 70 75 80
Trp Ala His Leu Thr Ser Ser Asp Leu Ile His Trp Asp Tyr Glu Gly
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Ile Ala Leu Tyr Pro Asp Ser Glu Tyr Asp Ser His Gly Val Tyr Ser
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Gly Ser Ala Leu Thr Ile Asp Asn Gln Leu Cys Leu Phe Tyr Thr Gly
115 120 125
Asn Val Arg Asp Gln Thr Trp Gln Arg Phe Ala Tyr Gln Asn Ile Ala
130 135 140
Trp Leu Asn Ser Leu Gly Ala Ile Thr Lys Glu Ser Thr Pro Phe Leu
145 150 155 160
Pro Ile Asp Pro Asn Tyr Ser Ser His Phe Arg Asp Pro Met Val Phe
165 170 175
Pro Tyr Gln Glu Gly Leu Val Leu Leu Ile Gly Ala Ser Asp Leu Asn
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Gly Gln Gly Lys Ile Val Val Tyr Phe Ser Lys Asp Arg Asn Val His
195 200 205
Asn Phe His Gln Leu Gly Glu Leu Thr Phe Thr Asn Gln Glu Leu Gly
210 215 220
Tyr Met Val Glu Cys Pro Asn Leu Val Phe Ile Asp Gly Gln Pro Val
225 230 235 240
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Phe Asp Val Tyr Ala Thr Gln Ala Phe Asn Ala Pro Asp Gly Arg Ala
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305 310 315 320
Val Glu Gly Trp Ala Asn Gly Leu Ser Leu Val Lys Glu Leu Thr Ile

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<210> 17

<211> 1347

<212> DNA

<213> Enterococcus faecalis

<400> 17

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<210> 18

<211> 448

<212> PRT

<213> Enterococcus faecalis

<400> 18

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Pro Leu Leu Ser Leu Met Glu Asp Gln Met Arg Gln Leu Gln Arg Gln
35     40     45
Gly Ile Lys Gly Ala Val Ala Leu Asn Ser Thr Leu Gln Tyr Ser Glu
50     55     60
Lys Arg Tyr Ile Leu Ala Lys Met Phe Gln Tyr Asp Tyr Leu Phe Leu
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Ser Pro Glu Met Leu Leu Gln Gln Glu Val Leu Ser Val Leu Gln Arg
85     90     95
Gln Lys Ile Ala Leu Phe Val Val Asp Glu Ala His Cys Val Tyr Gln
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115    120    125
Lys Gln Leu Asp Phe Pro Leu Thr Leu Ala Leu Thr Ala Thr

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	165	170
Val Lys Glu Thr Ser Glu Lys Glu Glu Val Leu Leu Asp Tyr Leu Ser		175
	180	185
Lys Thr Ala Gly Lys Ile Ile Ile Tyr Cys Ala Thr Arg Asn Lys Thr		190
	195	200
Glu Gln Ile Ser Gln Leu Ile Gln Ala Lys Thr Ser Phe Lys Val Ala		205
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Tyr Tyr His Gly Gly Leu Glu Ala Ser Glu Arg Ser Arg Leu Gln Glu		220
225	230	235
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	290	295
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305	310	315
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Asp Tyr Ser Phe Glu Glu Leu Glu His Arg Leu Glu Glu Lys Glu Lys		350
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Asp Arg Gln Ala Gln Leu Arg Gly Met Leu Thr Tyr Ile Glu Thr Thr		365
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Thr Cys Arg Arg Thr Leu Ile Gln Thr Tyr Phe Gln Glu Pro Ile Val		380
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Lys Gln Ser Pro Glu Thr Cys Cys Asp Asn Cys Ala Leu Phe Phe Asp		400
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 <212> DNA  
 <213> Enterococcus faecalis

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<210> 20
<211> 888
<212> DNA
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<210> 21
<211> 294
<212> PRT
<213> Enterococcus faecalis

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20 25 30
Ser Lys Gln Ile Lys Ile Leu Glu Ala Thr Leu Gly Ala Glu Leu Phe
35 40 45
Asn Arg Gln Gly Gln Thr Thr Thr Leu Thr Pro Ala Gly Leu Ile Leu

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50		55		60
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65	70	75	80	
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	85	90	95	
Tyr Leu Cys Asp	Leu Glu Tyr Lys	Leu Asn Asp Leu Leu	Met Thr Thr	
	100	105	110	
Leu Thr Asp Arg	Ser Ser Asn Leu	Gln Val His Thr	Ile Ile Thr Glu	
	115	120	125	
Asn Ile Leu Gln Ser	Leu Glu Thr Met	Asp Ala Asp Phe	Gly Ile Ser	
	130	135	140	
Phe Ala Asp Leu Pro	Leu Pro Glu His	Ile Gly Lys Ile	Asp Leu Phe	
	145	150	155	160
Thr Ala Asn Tyr Gln	Phe Ile Leu Arg	Asn Asp His Pro	Ala Leu Ala	
	165	170	175	
Lys Ala Thr Thr	Glu Glu Ile Leu	Lys Glu Leu Thr	Met Tyr Pro Phe	
	180	185	190	
Val Arg Leu Asn Thr	Glu Phe Ser Glu	Gln Asn Lys Leu	Thr Asn Trp	
	195	200	205	
Leu Asp Thr Thr Phe	Ser Asn Phe Ser	Pro Glu Lys Val	Ile Gln Val	
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Asp Thr Leu Ser Leu	Ile Thr His Leu	Val Ser His Ser	Asp Phe Ala	
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Ile Val Pro Glu Tyr	Thr Asn Ile Gln	Leu Leu Asp Asn	Ser Ile His	
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<210> 22  
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 <212> DNA  
 <213> Enterococcus faecalis

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 <212> DNA  
 <213> *Enterococcus faecalis*

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tacgacacca	tcatcagcat	tcatctttct	tcaggaatct	ctggttttgt	tcatacattg	300
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 <213> Enterococcus faecalis

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 Tyr Ala Leu Leu Asn Asn Ser Lys Glu Phe Pro Thr Thr Ser Gln Pro  
 50 55 60  
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 65 70 75 80  
 Tyr Asp Thr Ile Ile Ser Ile His Leu Ser Ser Gly Ile Ser Gly Phe  
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 Val His Thr Leu His Gly Leu Thr Asp Glu Ile Pro Gly Val Ala Leu  
 100 105 110  
 Tyr Pro Tyr Asp Ser Lys Ile Thr Ser Met Pro Met Gly His Met Val  
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 130 135 140  
 Phe Ala Lys Leu Asp Leu Ile Arg Asp Asn Thr Tyr Ala Tyr Leu Ile  
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 Val Glu Asp Leu Asn Asn Leu Val Arg Gly Gly Arg Leu Thr Asn Gly  
 165 170 175  
 Ala Ala Leu Ile Ala Gly Leu Leu Lys Ile Lys Pro Ile Leu Thr Phe  
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 Glu Asp Gly Lys Ile Val Leu Phe Glu Lys Ile Arg Ser Thr Lys Lys  
 195 200 205  
 Ala Phe Ala Arg Ala Glu Lys Ile Ile Gly Glu Arg Asn Ala Gly Ile  
 210 215 220  
 Glu Ala Pro Val Lys Leu Tyr Val Ile His Ala Asn Asn Arg Ile Val  
 225 230 235 240  
 Ala Glu Lys Glu Gln Ala Lys Leu Gln Lys Leu Tyr Pro Asn Ala Glu  
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<210> 28  
 <211> 2203  
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 ttcttccaat acttcttttt caatattttt tttaggagag cagccaattt cggcatagcc 240  
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ctcatagact taatacgttt agtttaacag aaaaaataa agaaagggca gatttagcga 600
gaaaaggcgt cgttttaagg aaataataaa gaataaatga ctaacttaca tttttaaaact 660
acctatgcta ttatttaata aaaaagattg ggtatacaat aattttgtta tgtaaacaaa 720
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<210> 29  
 <211> 528  
 <212> DNA  
 <213> Enterococcus faecalis

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tatgagagga aatttagtcc agcagtttta gaaagcgaaa tcttacataa agattcgcaa 180
tatttctttg ctttttataa taatgaactt gcaggttatg tgaaattaaa tcacggtgat 240
gctcagatta cctatcaaca tccacaagcg ttacaagttg agcgcattta tattcgtaaa 300
tcttttaagc gtttaggctt aggcaaacat ttgattacga aagcaattga attagcggaa 360
gaagcagaaa aagagacggt ttgggttaggt gtttggaac ataatcatcc agcgcaaaaa 420
ttttatcaat cattgggctt cgtcaaaaaca gatgaacatg atttttatat gggaaatgaa 480
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 <212> PRT  
 <213> Enterococcus faecalis

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Ala	Gln	Ile	Thr	Tyr	Gln	His	Pro	Gln	Ala	Leu	Gln	Val	Glu	Arg	Ile
			85						90					95	
Tyr	Ile	Arg	Lys	Ser	Phe	Lys	Arg	Leu	Gly	Leu	Gly	Lys	His	Leu	Ile
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 tcagaaaactt actaaaaaaa tttcgtaaag gagcacacag g atg aaa gaa ata act 176  
 Met Lys Glu Ile Thr  
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gga gcc act cgt tta gct ggg cta ttc gcg aaa ccc agc caa cac agt 224  
 Gly Ala Thr Arg Leu Ala Gly Leu Phe Ala Lys Pro Ser Gln His Ser



10										15					20					
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Ile Ser Pro Leu Ile His Asn Thr Ala Phe Gln Asn Leu Gly Val Asp																				
25 30 35																				
gct cgg tat ctg gcg ttt gac gtt gga caa gag aca ttg cca caa gca	320																			
Ala Arg Tyr Leu Ala Phe Asp Val Gly Gln Glu Thr Leu Pro Gln Ala																				
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Ile Glu Ala Ile Arg Thr Phe His Met Leu Gly Ala Asn Leu Ser Met																				
55 60 65																				
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His Ser Ser Pro Ile Glu Asn Tyr Ala Met Ile Gln Pro Lys Leu Phe																				
215 220 225																				
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Val Tyr Asp Ala Ile Tyr Asn Pro Arg Glu Thr Gln Leu Leu Lys Glu																				
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Tyr Gln Gly Ala Ala Phe Glu Trp Thr Gly Gln Lys Met Pro	
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Val Ser Val Val Lys Arg Lys Ile Glu Asn Arg *	
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gttttaaaggc atgaggagag aatata atg atc gta att atg aaa gaa aat gca	1091
Met Ile Val Ile Met Lys Glu Asn Ala	
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Thr Glu Lys Gln Met Lys Gln Val Ile Asp Leu Val Thr Gly Ala Gly	
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tta act act caa aca agt caa gat aat gga aaa aca gtg ata ggc ttg	1187
Leu Thr Thr Gln Thr Ser Gln Asp Asn Gly Lys Thr Val Ile Gly Leu	
315 320 325	
att ggt gat aca gaa aaa tta gtt gaa gca gag tta aca gca tta gaa	1235
Ile Gly Asp Thr Glu Lys Leu Val Glu Ala Glu Leu Thr Ala Leu Glu	
330 335 340 345	
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Gly Val Glu Lys Ser Val Arg Ile Ser Leu Ser Tyr Lys Leu Thr Ser	
350 355 360	
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Arg Leu Phe His Pro Glu Asn Thr Val Val Asp Val Asn Gly Val Lys	
365 370 375	
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395 400 405	
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475 480 485	
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490 495 500 505	
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510 515 520	
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Phe Ile Glu Arg Gly Ile Arg Thr Tyr Glu Thr Ala Thr Arg Asn Thr	
525 530 535	
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555 560 565	
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Pro Met Ala Arg Ala Gly Val Ala Ser Gly Ala Asp Gly Leu Ile Val	
570 575 580 585	
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605 610 615	
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Gln Val Pro Thr Thr Leu Leu Ala Gln Val Asp Ser Ser Ile Gly Gly	
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Lys Thr Ala Val Asn Thr Lys Lys Ala Lys Asn Leu Val Gly Thr Phe	
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790 795 800	
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805 810 815	
gct atc gct gat gtt gaa ttg tgg cac cgt tta tcc tct ttg gaa aat	2727
Ala Ile Ala Asp Val Glu Leu Trp His Arg Leu Ser Ser Leu Glu Asn	
820 825 830	
gaa caa gat tta gtg gca cat gca gaa gaa att atc acg gcc tgt tgc	2775
Glu Gln Asp Leu Val Ala His Ala Glu Glu Ile Ile Thr Ala Cys Cys	
835 840 845 850	
aag att aaa cgt gat gtc gtc gaa gaa gat gaa tta gat ttg ggc tta	2823
Lys Ile Lys Arg Asp Val Val Glu Glu Asp Glu Leu Asp Leu Gly Leu	
855 860 865	
cgt ttg att ctg aat ttt ggg cat acg atc ggc cac gca tta gaa aat	2871
Arg Leu Ile Leu Asn Phe Gly His Thr Ile Gly His Ala Leu Glu Asn	
870 875 880	
aca gct ggt tac ggg gtg att gct cac ggt gaa ggc gtt tct tta gga	2919
Thr Ala Gly Tyr Gly Val Ile Ala His Gly Glu Gly Val Ser Leu Gly	
885 890 895	
atg att caa ata act caa gtc gca gaa caa caa ggg ctt tcc cca ctt	2967
Met Ile Gln Ile Thr Gln Val Ala Glu Gln Gln Gly Leu Ser Pro Leu	
900 905 910	
ggg act acc caa gag ttg gtc acc atg cta gaa aag ttc cat tta cca	3015
Gly Thr Thr Gln Glu Leu Val Thr Met Leu Glu Lys Phe His Leu Pro	
915 920 925 930	
gta acc aca gat cgt tgg tca gaa gaa cgt ctc tat caa gca att aca	3063
Val Thr Thr Asp Arg Trp Ser Glu Glu Arg Leu Tyr Gln Ala Ile Thr	

935	940	945	
cat gat aaa aaa aca cgt ggg gga cag att aaa atc att gtc tta gaa His Asp Lys Lys Thr Arg Gly Gly Gln Ile Lys Ile Ile Val Leu Glu 950 955 960			3111
aaa att ggt caa gcg aaa att gtc tct tta cca acg gaa gaa att cga Lys Ile Gly Gln Ala Lys Ile Val Ser Leu Pro Thr Glu Glu Ile Arg 965 970 975			3159
gca ttt tta aac aga gaa gga gga att taa g atg cgc ttt att aca gca Ala Phe Leu Asn Arg Glu Gly Gly Ile * Met Arg Phe Ile Thr Ala 980 985 990			3208
ggc gaa tca cat gga cct gaa tta act gct att att gaa ggc tta cca Gly Glu Ser His Gly Pro Glu Leu Thr Ala Ile Ile Glu Gly Leu Pro 995 1000 1005			3256
gcc ggc ttg cct tta agt agc gaa gag att aac cga gaa tta gca aga Ala Gly Leu Pro Leu Ser Ser Glu Glu Ile Asn Arg Glu Leu Ala Arg 1010 1015 1020 1025			3304
cgt caa ggc ggt tac ggt cgt ggg gga cgg atg aaa att gaa aaa gac Arg Gln Gly Gly Tyr Gly Arg Gly Gly Arg Met Lys Ile Glu Lys Asp 1030 1035 1040			3352
caa gta cgt att act tcg ggt att cgg cat ggt aaa aca ctt ggc tca Gln Val Arg Ile Thr Ser Gly Ile Arg His Gly Lys Thr Leu Gly Ser 1045 1050 1055			3400
cca gta acg ttg att gtc gaa aac aaa gac tgg aaa aat tgg acc tcc Pro Val Thr Leu Ile Val Glu Asn Lys Asp Trp Lys Asn Trp Thr Ser 1060 1065 1070			3448
gtg atg tca gta gag cca gtt cct gaa aaa caa aag aaa atc cgc cgc Val Met Ser Val Glu Pro Val Pro Glu Lys Gln Lys Lys Ile Arg Arg 1075 1080 1085			3496
gtc agc aaa cca cgt cca gga cat gct gat tta gtc ggt ggc atg aaa Val Ser Lys Pro Arg Pro Gly His Ala Asp Leu Val Gly Gly Met Lys 1090 1095 1100 1105			3544
tat caa cat gat gat tta cgg aat gtt tta gaa cgg tct tcg gca cga Tyr Gln His Asp Asp Leu Arg Asn Val Leu Glu Arg Ser Ser Ala Arg 1110 1115 1120			3592
gaa aca acg atg cgt gtg gcg att ggt gcg gtt gct aaa aaa ctc tta Glu Thr Thr Met Arg Val Ala Ile Gly Ala Val Ala Lys Lys Leu Leu 1125 1130 1135			3640
gct gaa ctg gat atc caa gtc gct ggg cat gtc gcg gta tta ggt ggg Ala Glu Leu Asp Ile Gln Val Ala Gly His Val Ala Val Leu Gly Gly 1140 1145 1150			3688
att gaa gct acg atc cct gaa aat tta acg att cgt gaa att caa gaa Ile Glu Ala Thr Ile Pro Glu Asn Leu Thr Ile Arg Glu Ile Gln Glu 1155 1160 1165			3736
cga tct gaa caa tct gcc gtt cgc gta tta gat cct tcc gta gaa gaa			3784

Arg	Ser	Glu	Gln	Ser	Ala	Val	Arg	Val	Leu	Asp	Pro	Ser	Val	Glu	Glu		
1170					1175					1180					1185		
aaa	atg	aaa	gaa	cta	att	gac	caa	acc	aag	aaa	aat	ggc	gat	aca	att	3832	
Lys	Met	Lys	Glu	Leu	Ile	Asp	Gln	Thr	Lys	Lys	Asn	Gly	Asp	Thr	Ile		
				1190					1195					1200			
ggg	ggg	gta	gta	gaa	gta	ctt	gtg	ggg	ggc	ggt	cca	gct	ggc	tta	ggg	3880	
Gly	Gly	Val	Val	Glu	Val	Leu	Val	Gly	Gly	Val	Pro	Ala	Gly	Leu	Gly		
				1205				1210					1215				
agc	tat	gtc	caa	tgg	gat	cgt	aaa	cta	gat	gcc	aaa	att	gcg	caa	gca	3928	
Ser	Tyr	Val	Gln	Trp	Asp	Arg	Lys	Leu	Asp	Ala	Lys	Ile	Ala	Gln	Ala		
		1220					1225					1230					
ggt	gta	agc	atc	aac	gct	ttt	aca	ggg	gct	gag	ttt	ggc	att	gga	ttt	3976	
Val	Val	Ser	Ile	Asn	Ala	Phe	Thr	Gly	Ala	Glu	Phe	Gly	Ile	Gly	Phe		
	1235					1240					1245						
gaa	atg	gca	caa	cgc	cct	ggg	agt	caa	ctg	atg	gac	gag	att	ggt	tgg	4024	
Glu	Met	Ala	Gln	Arg	Pro	Gly	Ser	Gln	Leu	Met	Asp	Glu	Ile	Val	Trp		
1250					1255				1260						1265		
gac	gaa	agt	act	ggg	tat	acc	aga	act	tcc	aac	aat	tta	ggc	ggg	ttt	4072	
Asp	Glu	Ser	Thr	Gly	Tyr	Thr	Arg	Thr	Ser	Asn	Asn	Leu	Gly	Gly	Phe		
				1270					1275					1280			
gaa	gga	gga	atg	acc	aac	gga	atg	cca	atc	atc	ggt	cgt	ggg	gtc	atg	4120	
Glu	Gly	Gly	Met	Thr	Asn	Gly	Met	Pro	Ile	Ile	Val	Arg	Gly	Val	Met		
			1285					1290					1295				
aaa	cct	att	cca	acc	ctt	tat	aaa	cca	tta	caa	agc	gtg	aat	att	gat	4168	
Lys	Pro	Ile	Pro	Thr	Leu	Tyr	Lys	Pro	Leu	Gln	Ser	Val	Asn	Ile	Asp		
	1300						1305					1310					
aca	aaa	gag	cct	tat	aag	gcc	agt	ggt	gag	cgc	tct	gat	agc	acg	gcg	4216	
Thr	Lys	Glu	Pro	Tyr	Lys	Ala	Ser	Val	Glu	Arg	Ser	Asp	Ser	Thr	Ala		
	1315					1320					1325						
gta	ccg	gcc	gct	agc	ggt	ggt	tgt	gaa	gcc	ggt	ggt	gca	acg	gaa	gta	4264	
Val	Pro	Ala	Ala	Ser	Val	Val	Cys	Glu	Ala	Val	Val	Ala	Thr	Glu	Val		
1330					1335				1340						1345		
gca	aag	gct	atg	ctc	gaa	aaa	ttt	gat	agt	gac	tca	ttt	gaa	caa	atg	4312	
Ala	Lys	Ala	Met	Leu	Glu	Lys	Phe	Asp	Ser	Asp	Ser	Phe	Glu	Gln	Met		
				1350				1355						1360			
aaa	gaa	gca	gtg	aaa	cgt	tat	cgt	cta	tat	act	caa	aac	ttt	taa		4357	
Lys	Glu	Ala	Val	Lys	Arg	Tyr	Arg	Leu	Tyr	Thr	Gln	Asn	Phe	*			
			1365					1370				1375					
tggaagaaag	tcgcaagtat	atggagggaa	aaa	atg	aag	aaa	cgt	att	tta	atc						4411	
				Met	Lys	Lys	Arg	Ile	Leu	Ile						1380	
gta	gga	tta	ggg	cta	atc	ggg	agt	tca	ctg	gct	ttg	tgt	atc	aaa	aaa	4459	
Val	Gly	Leu	Gly	Leu	Ile	Gly	Ser	Ser	Leu	Ala	Leu	Cys	Ile	Lys	Lys		
			1385				1390					1395					

ggg cat cca aac agt gag att atc ggt ttc gat aat caa gcg gag gca	4507
Gly His Pro Asn Ser Glu Ile Ile Gly Phe Asp Asn Gln Ala Glu Ala	
1400 1405 1410	
act gaa ttt gct aag aaa acg ggt cta att gat gag ata gct gaa tct	4555
Thr Glu Phe Ala Lys Lys Thr Gly Leu Ile Asp Glu Ile Ala Glu Ser	
1415 1420 1425 1430	
tta aca agt ggg gca aga cga gca gag att att ttt ctt tgt tcc cca	4603
Leu Thr Ser Gly Ala Arg Arg Ala Glu Ile Ile Phe Leu Cys Ser Pro	
1435 1440 1445	
gtt aaa gca act tta gta caa cta gaa gaa tta aac caa tta tca cta	4651
Val Lys Ala Thr Leu Val Gln Leu Glu Glu Leu Asn Gln Leu Ser Leu	
1450 1455 1460	
gaa act gct ctg atc aca gat gtg ggt agt acc aag gtg gaa att aat	4699
Glu Thr Ala Leu Ile Thr Asp Val Gly Ser Thr Lys Val Glu Ile Asn	
1465 1470 1475	
cag tta gca aca aag ctt aac atg aaa aat ttt att ggt ggt cat cca	4747
Gln Leu Ala Thr Lys Leu Asn Met Lys Asn Phe Ile Gly Gly His Pro	
1480 1485 1490	
atg gct ggt tca cat aaa tcc ggc gta aca gcc gct gat gaa cgt ttg	4795
Met Ala Gly Ser His Lys Ser Gly Val Thr Ala Ala Asp Glu Arg Leu	
1495 1500 1505 1510	
ttt gaa aat gcc tac tat att ttt acc gat gac cat ggc gaa aaa aac	4843
Phe Glu Asn Ala Tyr Tyr Ile Phe Thr Asp Asp His Gly Glu Lys Asn	
1515 1520 1525	
aaa cag att cag gag tta caa acg tta cta aaa gga acg cat gcg aag	4891
Lys Gln Ile Gln Glu Leu Gln Thr Leu Leu Lys Gly Thr His Ala Lys	
1530 1535 1540	
ttt att acg atg cct gca cag gaa cat gat gaa att act ggt gct cta	4939
Phe Ile Thr Met Pro Ala Gln Glu His Asp Glu Ile Thr Gly Ala Leu	
1545 1550 1555	
agt cac ttg cca cat att gtt gcc gca gcg tta gtg aac gaa agt cag	4987
Ser His Leu Pro His Ile Val Ala Ala Ala Leu Val Asn Glu Ser Gln	
1560 1565 1570	
caa ctg aat acc act tac cct aga gcg cag cag cta gcg gct gga gga	5035
Gln Leu Asn Thr Thr Tyr Pro Arg Ala Gln Gln Leu Ala Ala Gly Gly	
1575 1580 1585 1590	
ttc aga gat att act cga att gct tcc tct gat gca acg atg tgg acg	5083
Phe Arg Asp Ile Thr Arg Ile Ala Ser Ser Asp Ala Thr Met Trp Thr	
1595 1600 1605	
gat att tta tta agc aat cgc tta gta tta ttg gac tta cta gaa aat	5131
Asp Ile Leu Leu Ser Asn Arg Leu Val Leu Leu Asp Leu Leu Glu Asn	
1610 1615 1620	
tgg caa aaa gag atg act act gtt tgc caa tgg tta aca gaa aaa aat	5179
Trp Gln Lys Glu Met Thr Thr Val Cys Gln Trp Leu Thr Glu Lys Asn	
1625 1630 1635	

gcc cca gct att cgt aat ttt ttt gat aag gcc aaa gaa aca cgt gct Ala Pro Ala Ile Arg Asn Phe Phe Asp Lys Ala Lys Glu Thr Arg Ala 1640 1645 1650	5227
caa ttg cct att cat aaa gaa ggc gca atc cca gct ttc tat gat ctg Gln Leu Pro Ile His Lys Glu Gly Ala Ile Pro Ala Phe Tyr Asp Leu 1655 1660 1665 1670	5275
ttt gtt gat gta cca gat caa cca gga atc att gct gaa att acg caa Phe Val Asp Val Pro Asp Gln Pro Gly Ile Ile Ala Glu Ile Thr Gln 1675 1680 1685	5323
att tta ggc gaa gcg gac ctt tct ctt aca aat att aaa att tta gaa Ile Leu Gly Glu Ala Asp Leu Ser Leu Thr Asn Ile Lys Ile Leu Glu 1690 1695 1700	5371
acg aga gaa gaa atc tat ggg att ctt caa ttg tct ttt aaa aat caa Thr Arg Glu Glu Ile Tyr Gly Ile Leu Gln Leu Ser Phe Lys Asn Gln 1705 1710 1715	5419
cca gac tgc caa gct gca aaa caa att tta tct aaa aaa acg aac tat Pro Asp Cys Gln Ala Ala Lys Gln Ile Leu Ser Lys Lys Thr Asn Tyr 1720 1725 1730	5467
acg tgt tac gaa aaa taa gaggtg atg agg gtg caa cta cgt aca aat Thr Cys Tyr Glu Lys * Met Arg Val Gln Leu Arg Thr Asn 1735 1740 1745	5515
gtg aag cat tta caa ggg act ctg atg gtt cct agc gac aaa tcg att Val Lys His Leu Gln Gly Thr Leu Met Val Pro Ser Asp Lys Ser Ile 1750 1755 1760	5563
tcc cat aga agt att atg ttt gga gcg att tct tct gga aaa acg acg Ser His Arg Ser Ile Met Phe Gly Ala Ile Ser Ser Gly Lys Thr Thr 1765 1770 1775	5611
att aca aat ttt cta aga ggc gaa gat tgt tta agt acc tta gcg gcg Ile Thr Asn Phe Leu Arg Gly Glu Asp Cys Leu Ser Thr Leu Ala Ala 1780 1785 1790 1795	5659
ttt cgt tct tta ggt gtg aac att gaa gat gac ggg acg aca atc acc Phe Arg Ser Leu Gly Val Asn Ile Glu Asp Asp Gly Thr Thr Ile Thr 1800 1805 1810	5707
gtt gag ggg cga gga ttt gca ggc tta aaa aag gcg aag aat aca att Val Glu Gly Arg Gly Phe Ala Gly Leu Lys Lys Ala Lys Asn Thr Ile 1815 1820 1825	5755
gat gtt gga aat tca ggg aca aca att cgt ctg atg ctg ggc att tta Asp Val Gly Asn Ser Gly Thr Thr Ile Arg Leu Met Leu Gly Ile Leu 1830 1835 1840	5803
gct ggc tgt ccc ttt gaa acg cgc cta gct ggt gat gcg tct att gcc Ala Gly Cys Pro Phe Glu Thr Arg Leu Ala Gly Asp Ala Ser Ile Ala 1845 1850 1855	5851
aaa cga cca atg aat cgt gta atg ctt cct tta aac caa atg gga gcg Lys Arg Pro Met Asn Arg Val Met Leu Pro Leu Asn Gln Met Gly Ala	5899



1860	1865	1870	1875	
gaa tgt caa ggg gtt cag caa acg gag ttt ccg cca att tct att cgc				5947
Glu Cys Gln Gly Val Gln Gln Thr Glu Phe Pro Pro Ile Ser Ile Arg	1880	1885	1890	
ggg act caa aat ttg caa ccg att gac tac aca atg cct gtt gca agt				5995
Gly Thr Gln Asn Leu Gln Pro Ile Asp Tyr Thr Met Pro Val Ala Ser	1895	1900	1905	
gct caa gtt aaa tcg gct att tta ttc gcc gct ttg caa gcc gag ggc				6043
Ala Gln Val Lys Ser Ala Ile Leu Phe Ala Ala Leu Gln Ala Glu Gly	1910	1915	1920	
act tct gta gtg gtt gag aaa gaa aag aca cgt gat cat aca gaa gag				6091
Thr Ser Val Val Val Glu Lys Glu Lys Thr Arg Asp His Thr Glu Glu	1925	1930	1935	
atg att cga caa ttt ggt ggg aca ctt gaa gta gac ggt aaa aaa att				6139
Met Ile Arg Gln Phe Gly Gly Thr Leu Glu Val Asp Gly Lys Lys Ile	1940	1945	1950	1955
atg tta act gga ccg caa caa tta aca ggt caa aat gtg gta gtt cct				6187
Met Leu Thr Gly Pro Gln Gln Leu Thr Gly Gln Asn Val Val Val Pro	1960	1965	1970	
ggg gat atc tct tct gca gct ttc ttt tta gtt gcg ggt tta gta gtc				6235
Gly Asp Ile Ser Ser Ala Ala Phe Phe Leu Val Ala Gly Leu Val Val	1975	1980	1985	
cca gat agc gag ata ctt ctg aaa aat gtt ggc tta aat caa acg ccg				6283
Pro Asp Ser Glu Ile Leu Leu Lys Asn Val Gly Leu Asn Gln Thr Arg	1990	1995	2000	
aca ggt att tta gat gtg att aaa aac atg ggc ggt tcc gtc act att				6331
Thr Gly Ile Leu Asp Val Ile Lys Asn Met Gly Gly Ser Val Thr Ile	2005	2010	2015	
tta aat gaa gat gag gcc aat cat tct ggc gat tta ctt gta aaa acg				6379
Leu Asn Glu Asp Glu Ala Asn His Ser Gly Asp Leu Leu Val Lys Thr	2020	2025	2030	2035
agt caa tta aca gct aca gag att ggt ggc gct att atc cca cgt tta				6427
Ser Gln Leu Thr Ala Thr Glu Ile Gly Gly Ala Ile Ile Pro Arg Leu	2040	2045	2050	
att gat gag tta ccg att att gct ttg tta gct act cag gct act ggc				6475
Ile Asp Glu Leu Pro Ile Ile Ala Leu Leu Ala Thr Gln Ala Thr Gly	2055	2060	2065	
acg aca atc att cga gat gca gaa gaa ttg aaa gtc aaa gaa acc aat				6523
Thr Thr Ile Ile Arg Asp Ala Glu Glu Leu Lys Val Lys Glu Thr Asn	2070	2075	2080	
cgg att gat gca gta gcg aaa gaa tta aca att tta ggc gcc gac atc				6571
Arg Ile Asp Ala Val Ala Lys Glu Leu Thr Ile Leu Gly Ala Asp Ile	2085	2090	2095	
acg cct act gat gat ggc tta att ata cat gga cca act tct tta cat				6619

Thr 2100	Pro	Thr	Asp	Asp	Gly 2105	Leu	Ile	Ile	His	Gly 2110	Pro	Thr	Ser	Leu	His 2115	
ggg	gga	aga	gtt	acc	agt	tat	ggg	gat	cat	cgt	atc	ggg	atg	atg	tta	6667
Gly	Gly	Arg	Val	Thr	Ser	Tyr	Gly	Asp	His	Arg	Ile	Gly	Met	Met	Leu	
				2120				2125					2130			
caa	att	gct	gca	tta	ctt	gta	aaa	gaa	ggc	act	gtt	gaa	tta	gat	aag	6715
Gln	Ile	Ala	Ala	Leu	Leu	Val	Lys	Glu	Gly	Thr	Val	Glu	Leu	Asp	Lys	
			2135					2140					2145			
gct	gaa	gca	gtt	tca	gtt	tct	tat	cca	gca	ttt	ttt	gac	gac	tta	gaa	6763
Ala	Glu	Ala	Val	Ser	Val	Ser	Tyr	Pro	Ala	Phe	Phe	Asp	Asp	Leu	Glu	
			2150				2155					2160				
cgt	tta	agt	tgt	taa	cgaaggagga	taacga	acc	atg	gaa	agc	att	gtt	tta			6815
Arg	Leu	Ser	Cys	*				Thr	Met	Glu	Ser	Ile	Val	Leu		
	2165								2170							
att	ggg	ttc	atg	ggg	gcg	ggg	aaa	aca	act	atc	ggc	caa	agt	ttg	gcc	6863
Ile	Gly	Phe	Met	Gly	Ala	Gly	Lys	Thr	Thr	Ile	Gly	Gln	Ser	Leu	Ala	
2175					2180				2185					2190		
aat	aaa	ctg	aag	atg	cct	cat	ctt	gat	tta	gat	aca	gcg	tta	att	gaa	6911
Asn	Lys	Leu	Lys	Met	Pro	His	Leu	Asp	Leu	Asp	Thr	Ala	Leu	Ile	Glu	
				2195				2200					2205			
aaa	ata	gga	cgc	tca	att	cct	gac	tat	ttc	gaa	aaa	tat	ggg	gaa	gca	6959
Lys	Ile	Gly	Arg	Ser	Ile	Pro	Asp	Tyr	Phe	Glu	Lys	Tyr	Gly	Glu	Ala	
			2210				2215					2220				
gct	ttc	cga	gaa	cag	gaa	acc	caa	ctt	tta	aag	gag	ctg	tca	aaa	aat	7007
Ala	Phe	Arg	Glu	Gln	Glu	Thr	Gln	Leu	Leu	Lys	Glu	Leu	Ser	Lys	Asn	
			2225				2230					2235				
aca	gcc	gtc	ctt	tca	act	ggg	ggc	ggg	att	gtt	gtc	gga	cca	gaa	aat	7055
Thr	Ala	Val	Leu	Ser	Thr	Gly	Gly	Gly	Ile	Val	Val	Gly	Pro	Glu	Asn	
	2240				2245					2250						
cgt	agc	tta	tta	aaa	tct	ttt	cag	caa	gtg	att	tat	tta	cat	gcg	aca	7103
Arg	Ser	Leu	Leu	Lys	Ser	Phe	Gln	Gln	Val	Ile	Tyr	Leu	His	Ala	Thr	
2255				2260					2265					2270		
cca	gaa	gag	ctg	tta	aaa	aga	atc	aca	gaa	gat	act	gaa	aac	caa	cgg	7151
Pro	Glu	Glu	Leu	Leu	Lys	Arg	Ile	Thr	Glu	Asp	Thr	Glu	Asn	Gln	Arg	
				2275				2280					2285			
ccc	tta	gct	ata	gaa	cgt	tct	tca	aaa	gaa	atc	att	act	ttg	ttt	gag	7199
Pro	Leu	Ala	Ile	Glu	Arg	Ser	Ser	Lys	Glu	Ile	Ile	Thr	Leu	Phe	Glu	
			2290				2295					2300				
tct	cgt	aaa	aat	ttt	tat	gaa	gaa	tgt	gcg	aag	atg	aca	att	gat	acg	7247
Ser	Arg	Lys	Asn	Phe	Tyr	Glu	Glu	Cys	Ala	Lys	Met	Thr	Ile	Asp	Thr	
		2305				2310					2315					
acc	aat	cgc	tcg	cca	gaa	gaa	att	atc	aat	gaa	att	ctg	caa	caa	tta	7295
Thr	Asn	Arg	Ser	Pro	Glu	Glu	Ile	Ile	Asn	Glu	Ile	Leu	Gln	Gln	Leu	
		2320			2325					2330						

aag gag tag agaaacg atg aaa gtt ggt tat tta ggt ccg att ggt tcc Lys Glu * Met Lys Val Gly Tyr Leu Gly Pro Ile Gly Ser 2335 2340 2345	7344
ttt acg tac agt gca acg ttg gct gct ttt cct gaa gct acg ttg atg Phe Thr Tyr Ser Ala Thr Leu Ala Phe Pro Glu Ala Thr Leu Met 2350 2355 2360	7392
ccg tac gca tcg att cca gct tgc ttg aaa gca att gaa cag caa gaa Pro Tyr Ala Ser Ile Pro Ala Cys Leu Lys Ala Ile Glu Gln Gln Glu 2365 2370 2375	7440
gtg gca tgg agc att atc cca ata gaa aac acg att gaa gga act gtt Val Ala Trp Ser Ile Ile Pro Ile Glu Asn Thr Ile Glu Gly Thr Val 2380 2385 2390 2395	7488
aac gca tcg ata gat tat ttg tat cat caa gcg cag tta cct gtc caa Asn Ala Ser Ile Asp Tyr Leu Tyr His Gln Ala Gln Leu Pro Val Gln 2400 2405 2410	7536
gca gag tta gtt tta ccg att caa caa caa tta atg gtg gca aaa gag Ala Glu Leu Val Leu Pro Ile Gln Gln Gln Leu Met Val Ala Lys Glu 2415 2420 2425	7584
aat caa gcg atc tgg caa caa agt cag aaa att tta tca cat ccg caa Asn Gln Ala Ile Trp Gln Gln Ser Gln Lys Ile Leu Ser His Pro Gln 2430 2435 2440	7632
gca tta gct caa tcg cag atg ttt cta gag aaa aac ttt cca gaa gcg Ala Leu Ala Gln Ser Gln Met Phe Leu Glu Lys Asn Phe Pro Glu Ala 2445 2450 2455	7680
att tta gaa gca aca cct tca aca gct tac gcc gcc aaa tac att gca Ile Leu Glu Ala Thr Pro Ser Thr Ala Tyr Ala Ala Lys Tyr Ile Ala 2460 2465 2470 2475	7728
gaa cat cca gaa tta cct ttt gca gct att gca cca aaa ctt tct gcg Glu His Pro Glu Leu Pro Phe Ala Ala Ile Ala Pro Lys Leu Ser Ala 2480 2485 2490	7776
gaa atg tat gat ttg acc att gtt gaa aaa aat ata caa gat tta tcg Glu Met Tyr Asp Leu Thr Ile Val Glu Lys Asn Ile Gln Asp Leu Ser 2495 2500 2505	7824
gta aat caa acc cga ttt tgg gtt ctt ggt tct gaa aat tta gcg att Val Asn Gln Thr Arg Phe Trp Val Leu Gly Ser Glu Asn Leu Ala Ile 2510 2515 2520	7872
tct ttc ccg cta tct gag aaa aaa ata aca ctg gcg att acg atg cca Ser Phe Pro Leu Ser Glu Lys Lys Ile Thr Leu Ala Ile Thr Met Pro 2525 2530 2535	7920
agt aat gtt cct ggc tct tta cac aaa gta tta agc gtg ttt agt tgg Ser Asn Val Pro Gly Ser Leu His Lys Val Leu Ser Val Phe Ser Trp 2540 2545 2550 2555	7968
cga ggg att aat ctt agc aaa ata gaa tcg cgg ccg ttg aaa aca aag Arg Gly Ile Asn Leu Ser Lys Ile Glu Ser Arg Pro Leu Lys Thr Lys 2560 2565 2570	8016

cta gga gag tac ttc ttt tta atg gac tta gtg aaa gat caa cca gaa 8064  
 Leu Gly Glu Tyr Phe Phe Leu Met Asp Leu Val Lys Asp Gln Pro Glu  
                   2575                                  2580                                  2585

aaa tta att gaa gca gcc tta aca gaa ctg gaa ctc att ggt gca gaa 8112  
 Lys Leu Ile Glu Ala Ala Leu Thr Glu Leu Glu Leu Ile Gly Ala Glu  
                   2590                                  2595                                  2600

ata aaa att tta ggg gat tac ccg atc tat gtt ttg tcc aca ctt taa 8160  
 Ile Lys Ile Leu Gly Asp Tyr Pro Ile Tyr Val Leu Ser Thr Leu \*  
                   2605                                  2610                                  2615

agagttaaaa atgaaaatga agcttactta ttagataaag tgagtttcat tttttattaa 8220  
 attacatatt tgtaatagga atttcctgtg aaatgaggta tcctaagaaa ggtgataaaa 8280  
 cacagaggta aaggagtgc acgatgagtc gtgtagatcg ttataaacat attcatgaaa 8340  
 tcttttc 8347

<210> 32  
 <211> 867  
 <212> DNA  
 <213> Enterococcus faecalis

<400> 32  
 atgaaagaaa taactggagc cactcgttta gctgggctat tcgcgaaacc cagccaacac 60  
 agtattttcac cgttgattca taatacagca tttcaaaatt taggagttga tgctcggat 120  
 ctggcggttg acgttgagca agagacattg ccacaagcaa ttgaagcgat tcgaacgttt 180  
 cacatgttag gggccaactt atcaatgccc aataaagtgg cggctgtaag ttatatggat 240  
 gaactaagtc ctaccgctca actggttggc gcaattaata cgattgtcaa caaagatgga 300  
 aaactttacg gagacagcac ggatgggtact ggttttatgt ggagtttgaa agagaaaaag 360  
 gttgacggtt ttcagaataa aatgaccatc ttaggaacag gtggtgcagc cttatcaatc 420  
 attgcccaag ctgcttttaga tggcgtgaaa gaaatcgccg tttacaacag gaaaagcgcg 480  
 ggctttaacg acagtcaaaa aaaactggca aatttctactg aacgaaccaa ctgtgttaatt 540  
 catttaaacg atttagcgga tactgaaaaa ctagcaaaaag atgttgctga aagcgtcttg 600  
 ttagttaatg caacgagtgt gggatgcat ccacatgcgc atagtagtcc tatagaaaat 660  
 tatgcaatga ttcaaccgaa gttatttgtg tatgatgcta tttataatcc cagagaaaaca 720  
 cagttattaa aagaagcccg tttacgtggt gcagaaacaa gcaacggcgt ggacatgcta 780  
 ctttatcaag gcgctgctgc ttttgaacaa tggacaggac aaaaaatgcc tgtatcagtc 840  
 gtaaaacgta aaattgaaaa tagataa 867

<210> 33  
 <211> 1026  
 <212> DNA  
 <213> Enterococcus faecalis

<400> 33  
 atgatcgtaa ttatgaaaga aaatgcaacc gaaaagcaaa tgaaacaagt cattgattta 60  
 gtaacaggtg caggcttaac tactcaaaca agtcaagata atggaaaaac agtgataggc 120  
 ttgattggtg atacagaaaa attagttgaa gcagagttaa cagcattaga aggcgtggag 180  
 aaaagtgtcc gcatttcgtt gtcttcaaaa ctaacgagtc gtttatttca tccagagaat 240  
 acagtgggtg atgtgaacgg tgttaaaatc ggtgacggca gtatgaccat gatggcgggc 300  
 ccttgttcaa tcgaaagctt agatcagatt cgcgaatgtg cgcgaattgc taaagctgga 360  
 ggtgcaacaa ttttacgagg tgggtgcattc aaacctagaa cgtcgccata cgctttccaa 420  
 ggactagaag aagaaggact aaaatacatt cgccaagcgg ctgatgaatt agatatgcaa 480  
 gtcattacag aagtgatgga tgaagcgaat ttagaacttg tcgcaaaaata cagtgcatt 540  
 ttacaaatcg gtgcgcgcaa catgcaaaat tccaagttat tacaagcggg tggtaaaact 600  
 ggaaaaacct ttggcttaaa acgcgggatt gctggtacga ttgatgaatg gctaaacgca 660  
 gctgaatata ttgctgcgca aggaaatttc aatgtgatct tcattgaacg tgggattcgt 720  
 acgtacgaaa ccgctacgcg caatacactt gatttaagtgc cgggtgccttt aattaaaaaa 780

ttaagtcatt	ttccaattat	tgttgatccg	agtcatggtg	ttggtatctg	ggatttagta	840
ccgccaatgg	cccagacagg	tgttgcttca	ggtgcgagcg	gcttgattgt	agaaattcat	900
ccagatccag	cgaatgcgtg	gtcagatggg	ccacaatcct	tgaatgaaaa	aacttaccta	960
cgtatgatga	aagaagttca	tatcatcgaa	aaagcaatga	aagaaattaa	tgctttagaa	1020
gattag						1026

<210> 34  
 <211> 1077  
 <212> DNA  
 <213> Enterococcus faecalis

<400> 34						
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ttagataaaa	ttggcacctg	ggtacgtagc	ctgtggcagc	cacaacgggt	agcgattatt	120
accgatgaaa	cggatgaata	attatatggc	gcagctgttg	agaaagaatt	gcaagctgct	180
ggttttgaaa	catcattgat	tgctgtagcg	gcaggtgaac	aaagtaagag	cctcgaaata	240
gctcaactgc	tttatgattt	tttagcggaa	cagcaattga	ctcgaagtga	tggtctaatt	300
gcttttagtg	gaggcggttg	gggagatcta	gctggatttg	tcgcttcaac	ctatatgcgc	360
ggtattcact	ttttgcaagt	accaacaacc	ttactggcac	aagtagatag	tagcattgga	420
ggtaaaacag	cggttaatac	taaaaaagcc	aaaaatcttg	tcggtacttt	tgcccaacca	480
gatgggggtt	taattgatcc	taatacactt	aaaacattag	aacctagacg	tgtgcgtgaa	540
ggaattgcag	aaattgtaaa	atcagcagct	atcgctgatg	ttgaattgtg	gcaccgttta	600
tcctcttttg	aaaatgaaca	agatttagtg	gcacatgcag	aagaaattat	cacggcctgt	660
tgcaagatta	aacgtgatgt	cgtcgaagaa	gatgaattag	atttgggctt	acgtttgatt	720
ctgaattttg	ggcatacgat	cggccacgca	ttagaaaata	cagctgggta	cgggggtgatt	780
gctcacggtg	aaggcggttc	tttaggaatg	attcaaataa	ctcaagtcgc	agaacaacaa	840
gggctttccc	cacttgggac	tacccaagag	ttggtcacca	tgctagaaaa	gttccattta	900
ccagtaacca	cagatcgttg	gtcagaagaa	cgtctctatc	aagcaattac	acatgataaa	960
aaaacacgtg	ggggacagat	taaaatcatt	gtcttagaaa	aaattggtca	agcgaaaatt	1020
gtctctttac	caacggaaga	aattcgagca	tttttaaaca	gagaaggagg	aatttaa	1077

<210> 35  
 <211> 1167  
 <212> DNA  
 <213> Enterococcus faecalis

<400> 35						
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ttaccagccg	gcttgccctt	aagtagcgaa	gagattaacc	gagaattagc	aagacgtcaa	120
ggcggttacg	gtcgtggggg	acggatgaaa	attgaaaaag	accaagtacg	tattacttcg	180
ggatattcgg	atggtaaaac	acttggctca	ccagtaacgt	tgattgtcga	aaacaaagac	240
tggaataaatt	ggacctccgt	gatgtcagta	gagccagttc	ctgaaaaaca	aaagaaaatc	300
cgccgcgtca	gcaaacacag	tccaggacat	gctgatttag	tcggtggcat	gaaatatcaa	360
catgatgatt	tacggaatgt	tttagaacgg	tcttcggcac	gagaaacaac	gatgcgtgtg	420
gcgattggtg	cggttgctaa	aaaactctta	gctgaactgg	atatccaagt	cgctgggcat	480
gtcgcgggtat	taggtgggat	tgaagctacg	atccctgaaa	atttaacgat	tcgtgaaatt	540
caagaacgat	ctgaacaatc	tgccgttcgc	gtattagatc	cttccgtaga	agaaaaaatg	600
aaagaactaa	ttgaccaaac	caagaaaaat	ggcgatacaa	ttggtggggg	agtagaagta	660
cttgtgggtg	gcgttccagc	tggcttaggt	agctatgtcc	aatgggatcg	taaactagat	720
gccaaaattg	cgcaagcagt	tgtaagcatc	aacgctttta	caggtgctga	gtttggcatt	780
ggatttgaaa	tggcacaacg	ccctggtagt	caactgatgg	acgagattgt	ttgggacgaa	840
agtactggtt	ataccagaac	ttccaacaat	ttaggcggtt	ttgaaggagg	aatgaccaac	900
ggaatgccaa	tcatcggttcg	tggtgtcatg	aaacctattc	caacccttta	taaaccatta	960
caaagcggtga	atattgatac	aaaagagcct	tataaggcca	gtgttgagcg	ctctgatagc	1020
acggcggtac	cggccgctag	cgttgtttgt	gaagccggtg	ttgcaacgga	agtagcaaa	1080
gctatgctcg	aaaaatttga	tagtgactca	tttgaacaaa	tgaaagaagc	agtgaaacgt	1140
tatcgtctat	atactcaaaa	cttttaa				1167

<210> 36

<211> 1095  
 <212> DNA  
 <213> Enterococcus faecalis

<400> 36

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atcaaaaaag	ggcatccaaa	cagtgaagatt	atcggtttcg	ataatcaagc	ggaggcaact	120
gaatttgcta	agaaaacggg	tctaattgat	gagatagctg	aatctttaac	aagtggggca	180
agacgagcag	agattatctt	tctttgttcc	ccagttaaag	caactttagt	acaactagaa	240
gaattaaacc	aattatcact	agaaaactgct	ctgatcacag	atgtgggtag	taccaagggtg	300
gaaattaatc	agtttagcaac	aaagcttaac	atgaaaaatt	ttattggtgg	tcattccaatg	360
gctggttcac	ataaatccgg	cgtaacagcc	gctgatgaac	gtttgtttga	aaatgcctac	420
tatatcttta	ccgatgacca	tggcgaaaaa	aacaaacaga	ttcaggagtt	acaaacgtta	480
ctaaaaggaa	cgcatgcgaa	gtttatttacg	atgcctgcac	aggaacatga	tgaaattact	540
ggtgctctaa	gtcacttgcc	acatattggt	gccgcagcgt	tagtgaacga	aagtcagcaa	600
ctgaatacca	cttaccctag	agcgacgacg	ctagcggctg	gaggattcag	agatattact	660
cgaattgctt	cctctgatgc	aacgatgtgg	acggatattt	tattaaagcaa	tcgcttagta	720
ttattggact	tactagaaaa	ttggcaaaaa	gagatgacta	ctgtttgcca	atggttaaca	780
gaaaaaaatg	ccccagctat	tcgtaatttt	tttgataagg	ccaaagaaac	acgtgctcaa	840
ttgcctattc	ataaagaagg	cgcaatccca	gctttctatg	atctgtttgt	tgatgtacca	900
gatcaaccag	gaatcattgc	tgaaattacg	caaatttttag	gcgaagcgga	cctttctctt	960
acaaatatta	aaatttttaga	aacgagagaa	gaaatctatg	ggattcttca	attgtctttt	1020
aaaaatcaac	cagactgcca	agctgcaaaa	caaattttat	ctaaaaaaac	gaactatacg	1080
tgttacgaaa	aataa					1095

<210> 37  
 <211> 1287  
 <212> DNA  
 <213> Enterococcus faecalis

<400> 37

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gacaaatcga	tttcccatag	aagtattatg	tttgagcgga	tttcttctgg	aaaaacgacg	120
attacaaatt	ttctaagagg	cgaagattgt	ttaagtacct	tagcggcggt	tcgttcttta	180
ggtgtgaaca	ttgaagatga	cgggacgaca	atcaccgttg	aggggcgagg	atttgcaggc	240
ttaaaaaagg	cgaagaatac	aattgatgtt	ggaaattcag	ggacaacaat	tcgtctgatg	300
ctgggcattt	tagctggctg	tccctttgaa	acgcgcctag	ctggtgatgc	gtctattgcc	360
aaacgaccaa	tgaatcgtgt	aatgcttcct	ttaaaccaaa	tgggagcgga	atgtcaaggg	420
gttcagcaaa	cggagtttcc	gccaatttct	attcgcggga	ctcaaaaatt	gcaaccgatt	480
gactacacaa	tgctgtttgc	aagtgtctca	gttaaatcgg	ctattttatt	cgccgctttg	540
caagccgagg	gcacttctgt	agtggttgag	aaagaaaaga	cacgtgatca	tacagaagag	600
atgattcgac	aatttggtgg	gacacttgaa	gtagacggta	aaaaaattat	gttaactgga	660
ccgcaacaat	taacagggtca	aaatgtggta	gttctctggt	atatctcttc	tcagactttc	720
tttttagttg	cgggttttagt	agtcccagat	agcgagatac	ttctgaaaaa	tggtggctta	780
aatcaaacgc	ggacaggtat	tttagatgtg	attaaaaaca	tgggcgggtc	cgctactatt	840
ttaaatagaag	atgaggccaa	tcattctggc	gatttacttg	taaaaacgag	tcaattaaca	900
gctacagaga	ttggtggcgc	tattatccca	cgtttaattg	atgagttacc	gattattgct	960
ttgtagtcta	ctcaggctac	tggcacgaca	atcattcgag	atgcagaaga	attgaaagtc	1020
aaagaaacca	atcgatttga	tgcagtacgc	aaagaattaa	caatttttagg	cgccgacatc	1080
acgcctactg	atgatggctt	aattatacat	ggaccaactt	ctttacatgg	tggaagagtt	1140
accagttatg	gggatcatcg	tatcgggatg	atgttacaaa	ttgctgcatt	acttgtaaaa	1200
gaaggcactg	ttgaattaga	taaggctgaa	gcagtttcag	tttcttatcc	agcatttttt	1260
gacgacttag	aacgtttaag	ttgttaa				1287

<210> 38  
 <211> 507  
 <212> DNA  
 <213> Enterococcus faecalis

<400> 38  
atggaaagca ttgttttaaat tggtttcatg ggtgcgggta aaacaactat cggccaaagt 60  
ttggccaata aactgaagat gcctcatctt gatttagata cagcgttaat tgaaaaaata 120  
ggacgtcaa ttcctgacta tttcgaaaaa tatggtgaag cagctttccg agaacaggaa 180  
acccaacttt taaaggagct gtcaaaaaat acagccgtcc tttcaactgg gggcgggatt 240  
gttgtcggac cagaaaatcg tagcttatta aaatcttttc agcaagtgat ttatttacat 300  
gcgacaccag aagagctgtt aaaaagaatc acagaagata ctgaaaacca acggccctta 360  
gctatagaac gttcttcaaa agaaatcatt actttgtttg agtctcgtaa aaatttttat 420  
gaagaatgtg cgaagatgac aattgatacg accaatcgct cgccagaaga aattatcaat 480  
gaaattctgc aacaattaaa ggagtag 507

<210> 39  
<211> 849  
<212> DNA  
<213> Enterococcus faecalis

<400> 39  
atgaaagttg gttatttagg tccgattggt tcctttacgt acagtgaac gttggctgct 60  
tttctgaag ctacgttgat gccgtacgca tcgattccag ctgtctgaa agcaattgaa 120  
cagcaagaag tggcatggag cattatccca atagaaaaca cgattgaagg aactgttaac 180  
gcatcgatag attatttgta tcatcaagcg cagttacctg tccaagcaga gttagtttta 240  
ccgattcaac aacaattaat ggtggcaaaa gagaatcaag cgatctggca acaaagtcag 300  
aaaattttat cacatccgca agcattagct caatcgaga tgtttctaga gaaaaacttt 360  
ccagaagcga ttttagaagc aacaccttca acagcttacg ccgccaata cattgcagaa 420  
catccagaat taccttttgc agctattgca ccaaaacttt ctgcggaaat gtatgatttg 480  
accattgttg aaaaaatat acaagattta tcggtaaatc aaaccgatt ttgggttctt 540  
ggttctgaaa atttagcgat ttctttcccg ctatctgaga aaaaaataac actggcgatt 600  
acgatgccaa gtaatgttcc tggctcttta cacaaagat taagcgtgtt tagttggcga 660  
gggattaatc ttagcaaaat agaatcgcgg ccgttgaaaa caaagctagg agagtacttc 720  
tttttaatgg acttagtgaa agatcaacca gaaaaattaa ttgaagcagc cttaacagaa 780  
ctggaactca ttggtgcaga aataaaaatt ttaggggatt acccgatcta tgttttgtcc 840  
acactttta 849

<210> 40  
<211> 288  
<212> PRT  
<213> Enterococcus faecalis

<400> 40  
Met Lys Glu Ile Thr Gly Ala Thr Arg Leu Ala Gly Leu Phe Ala Lys  
1 5 10 15  
Pro Ser Gln His Ser Ile Ser Pro Leu Ile His Asn Thr Ala Phe Gln  
20 25 30  
Asn Leu Gly Val Asp Ala Arg Tyr Leu Ala Phe Asp Val Gly Gln Glu  
35 40 45  
Thr Leu Pro Gln Ala Ile Glu Ala Ile Arg Thr Phe His Met Leu Gly  
50 55 60  
Ala Asn Leu Ser Met Pro Asn Lys Val Ala Ala Val Ser Tyr Met Asp  
65 70 75 80  
Glu Leu Ser Pro Thr Ala Gln Leu Val Gly Ala Ile Asn Thr Ile Val  
85 90 95  
Asn Lys Asp Gly Lys Leu Tyr Gly Asp Ser Thr Asp Gly Thr Gly Phe  
100 105 110  
Met Trp Ser Leu Lys Glu Lys Lys Val Asp Val Phe Gln Asn Lys Met  
115 120 125  
Thr Ile Leu Gly Thr Gly Gly Ala Ala Leu Ser Ile Ile Ala Gln Ala  
130 135 140  
Ala Leu Asp Gly Val Lys Glu Ile Ala Val Tyr Asn Arg Lys Ser Ala  
145 150 155 160

Gly	Phe	Asn	Asp	Ser	Gln	Lys	Lys	Leu	Ala	Asn	Phe	Thr	Glu	Arg	Thr		
				165					170					175			
Asn	Cys	Val	Ile	His	Leu	Asn	Asp	Leu	Ala	Asp	Thr	Glu	Lys	Leu	Ala		
			180					185					190				
Lys	Asp	Val	Ala	Glu	Ser	Val	Leu	Leu	Val	Asn	Ala	Thr	Ser	Val	Gly		
			195				200					205					
Met	His	Pro	His	Ala	His	Ser	Ser	Pro	Ile	Glu	Asn	Tyr	Ala	Met	Ile		
	210					215					220						
Gln	Pro	Lys	Leu	Phe	Val	Tyr	Asp	Ala	Ile	Tyr	Asn	Pro	Arg	Glu	Thr		
225					230					235					240		
Gln	Leu	Leu	Lys	Glu	Ala	Arg	Leu	Arg	Gly	Ala	Glu	Thr	Ser	Asn	Gly		
			245						250					255			
Leu	Asp	Met	Leu	Leu	Tyr	Gln	Gly	Ala	Ala	Ala	Phe	Glu	Gln	Trp	Thr		
			260					265					270				
Gly	Gln	Lys	Met	Pro	Val	Ser	Val	Val	Lys	Arg	Lys	Ile	Glu	Asn	Arg		
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<210> 41  
 <211> 341  
 <212> PRT  
 <213> Enterococcus faecalis

<400> 41

Met	Ile	Val	Ile	Met	Lys	Glu	Asn	Ala	Thr	Glu	Lys	Gln	Met	Lys	Gln		
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Val	Ile	Asp	Leu	Val	Thr	Gly	Ala	Gly	Leu	Thr	Thr	Gln	Thr	Ser	Gln		
			20					25					30				
Asp	Asn	Gly	Lys	Thr	Val	Ile	Gly	Leu	Ile	Gly	Asp	Thr	Glu	Lys	Leu		
		35					40				45						
Val	Glu	Ala	Glu	Leu	Thr	Ala	Leu	Glu	Gly	Val	Glu	Lys	Ser	Val	Arg		
	50				55					60							
Ile	Ser	Leu	Ser	Tyr	Lys	Leu	Thr	Ser	Arg	Leu	Phe	His	Pro	Glu	Asn		
65				70					75					80			
Thr	Val	Val	Asp	Val	Asn	Gly	Val	Lys	Ile	Gly	Asp	Gly	Ser	Met	Thr		
			85					90					95				
Met	Met	Ala	Gly	Pro	Cys	Ser	Ile	Glu	Ser	Leu	Asp	Gln	Ile	Arg	Glu		
		100						105					110				
Cys	Ala	Arg	Ile	Ala	Lys	Ala	Gly	Gly	Ala	Thr	Ile	Leu	Arg	Gly	Gly		
		115					120					125					
Ala	Phe	Lys	Pro	Arg	Thr	Ser	Pro	Tyr	Ala	Phe	Gln	Gly	Leu	Glu	Glu		
	130					135					140						
Glu	Gly	Leu	Lys	Tyr	Ile	Arg	Gln	Ala	Ala	Asp	Glu	Leu	Asp	Met	Gln		
145					150					155					160		
Val	Ile	Thr	Glu	Val	Met	Asp	Glu	Ala	Asn	Leu	Glu	Leu	Val	Ala	Lys		
			165					170						175			
Tyr	Ser	Asp	Ile	Leu	Gln	Ile	Gly	Ala	Arg	Asn	Met	Gln	Asn	Phe	Lys		
		180					185						190				
Leu	Leu	Gln	Ala	Val	Gly	Lys	Thr	Gly	Lys	Pro	Ile	Gly	Leu	Lys	Arg		
		195					200					205					
Gly	Ile	Ala	Gly	Thr	Ile	Asp	Glu	Trp	Leu	Asn	Ala	Ala	Glu	Tyr	Ile		
	210					215					220						
Ala	Ala	Gln	Gly	Asn	Phe	Asn	Val	Ile	Phe	Ile	Glu	Arg	Gly	Ile	Arg		
225					230					235					240		
Thr	Tyr	Glu	Thr	Ala	Thr	Arg	Asn	Thr	Leu	Asp	Leu	Ser	Ala	Val	Pro		
			245					250						255			
Leu	Ile	Lys	Lys	Leu	Ser	His	Phe	Pro	Ile	Ile	Val	Asp	Pro	Ser	His		
		260					265						270				
Gly	Val	Gly	Ile	Trp	Asp	Leu	Val	Pro	Pro	Met	Ala	Arg	Ala	Gly	Val		



	275		280		285
Ala	Ser Gly	Ala Asp Gly	Leu Ile Val Glu Ile	His Pro Asp	Pro Ala
290			295	300	
Asn	Ala Trp	Ser Asp Gly	Pro Gln Ser Leu	Asn Glu Lys Thr Tyr	Leu
305		310		315	320
Arg	Met Met	Lys Glu Val	His Ile Ile Glu	Lys Ala Met Lys Glu	Ile
		325	330		335
Asn	Ala Leu	Glu Asp			
	340				

<210> 42  
 <211> 358  
 <212> PRT  
 <213> Enterococcus faecalis

<400> 42

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		20						25				30			
Gln	Pro	Gln	Arg	Val	Ala	Ile	Ile	Thr	Asp	Glu	Thr	Val	Asn	Lys	Leu
		35				40						45			
Tyr	Gly	Ala	Ala	Val	Glu	Lys	Glu	Leu	Gln	Ala	Ala	Gly	Phe	Glu	Thr
	50					55					60				
Ser	Leu	Ile	Ala	Val	Ala	Ala	Gly	Glu	Gln	Ser	Lys	Ser	Leu	Glu	Ile
65				70					75					80	
Ala	Gln	Leu	Leu	Tyr	Asp	Phe	Leu	Ala	Glu	Gln	Gln	Leu	Thr	Arg	Ser
			85					90						95	
Asp	Gly	Leu	Ile	Ala	Leu	Gly	Gly	Gly	Val	Val	Gly	Asp	Leu	Ala	Gly
		100						105					110		
Phe	Val	Ala	Ser	Thr	Tyr	Met	Arg	Gly	Ile	His	Phe	Leu	Gln	Val	Pro
		115				120						125			
Thr	Thr	Leu	Leu	Ala	Gln	Val	Asp	Ser	Ser	Ile	Gly	Gly	Lys	Thr	Ala
	130				135						140				
Val	Asn	Thr	Lys	Lys	Ala	Lys	Asn	Leu	Val	Gly	Thr	Phe	Ala	Gln	Pro
145				150					155					160	
Asp	Gly	Val	Leu	Ile	Asp	Pro	Asn	Thr	Leu	Lys	Thr	Leu	Glu	Pro	Arg
			165					170						175	
Arg	Val	Arg	Glu	Gly	Ile	Ala	Glu	Ile	Val	Lys	Ser	Ala	Ala	Ile	Ala
		180					185						190		
Asp	Val	Glu	Leu	Trp	His	Arg	Leu	Ser	Ser	Leu	Glu	Asn	Glu	Gln	Asp
	195					200						205			
Leu	Val	Ala	His	Ala	Glu	Glu	Ile	Ile	Thr	Ala	Cys	Cys	Lys	Ile	Lys
	210				215						220				
Arg	Asp	Val	Val	Glu	Glu	Asp	Glu	Leu	Asp	Leu	Gly	Leu	Arg	Leu	Ile
225				230					235					240	
Leu	Asn	Phe	Gly	His	Thr	Ile	Gly	His	Ala	Leu	Glu	Asn	Thr	Ala	Gly
			245					250						255	
Tyr	Gly	Val	Ile	Ala	His	Gly	Glu	Gly	Val	Ser	Leu	Gly	Met	Ile	Gln
		260					265						270		
Ile	Thr	Gln	Val	Ala	Glu	Gln	Gln	Gly	Leu	Ser	Pro	Leu	Gly	Thr	Thr
	275					280						285			
Gln	Glu	Leu	Val	Thr	Met	Leu	Glu	Lys	Phe	His	Leu	Pro	Val	Thr	Thr
	290				295						300				
Asp	Arg	Trp	Ser	Glu	Glu	Arg	Leu	Tyr	Gln	Ala	Ile	Thr	His	Asp	Lys
305				310					315					320	
Lys	Thr	Arg	Gly	Gly	Gln	Ile	Lys	Ile	Ile	Val	Leu	Glu	Lys	Ile	Gly
			325					330						335	

Gln Ala Lys Ile Val Ser Leu Pro Thr Glu Glu Ile Arg Ala Phe Leu  
 340 345 350  
 Asn Arg Glu Gly Gly Ile  
 355

<210> 43  
 <211> 388  
 <212> PRT  
 <213> Enterococcus faecalis

<400> 43  
 Met Arg Phe Ile Thr Ala Gly Glu Ser His Gly Pro Glu Leu Thr Ala  
 1 5 10 15  
 Ile Ile Glu Gly Leu Pro Ala Gly Leu Pro Leu Ser Ser Glu Glu Ile  
 20 25 30  
 Asn Arg Glu Leu Ala Arg Arg Gln Gly Gly Tyr Gly Arg Gly Gly Arg  
 35 40 45  
 Met Lys Ile Glu Lys Asp Gln Val Arg Ile Thr Ser Gly Ile Arg His  
 50 55 60  
 Gly Lys Thr Leu Gly Ser Pro Val Thr Leu Ile Val Glu Asn Lys Asp  
 65 70 75 80  
 Trp Lys Asn Trp Thr Ser Val Met Ser Val Glu Pro Val Pro Glu Lys  
 85 90 95  
 Gln Lys Lys Ile Arg Arg Val Ser Lys Pro Arg Pro Gly His Ala Asp  
 100 105 110  
 Leu Val Gly Gly Met Lys Tyr Gln His Asp Asp Leu Arg Asn Val Leu  
 115 120 125  
 Glu Arg Ser Ser Ala Arg Glu Thr Thr Met Arg Val Ala Ile Gly Ala  
 130 135 140  
 Val Ala Lys Lys Leu Leu Ala Glu Leu Asp Ile Gln Val Ala Gly His  
 145 150 155 160  
 Val Ala Val Leu Gly Gly Ile Glu Ala Thr Ile Pro Glu Asn Leu Thr  
 165 170 175  
 Ile Arg Glu Ile Gln Glu Arg Ser Glu Gln Ser Ala Val Arg Val Leu  
 180 185 190  
 Asp Pro Ser Val Glu Glu Lys Met Lys Glu Leu Ile Asp Gln Thr Lys  
 195 200 205  
 Lys Asn Gly Asp Thr Ile Gly Gly Val Val Glu Val Leu Val Gly Gly  
 210 215 220  
 Val Pro Ala Gly Leu Gly Ser Tyr Val Gln Trp Asp Arg Lys Leu Asp  
 225 230 235 240  
 Ala Lys Ile Ala Gln Ala Val Val Ser Ile Asn Ala Phe Thr Gly Ala  
 245 250 255  
 Glu Phe Gly Ile Gly Phe Glu Met Ala Gln Arg Pro Gly Ser Gln Leu  
 260 265 270  
 Met Asp Glu Ile Val Trp Asp Glu Ser Thr Gly Tyr Thr Arg Thr Ser  
 275 280 285  
 Asn Asn Leu Gly Gly Phe Glu Gly Met Thr Asn Gly Met Pro Ile  
 290 295 300  
 Ile Val Arg Gly Val Met Lys Pro Ile Pro Thr Leu Tyr Lys Pro Leu  
 305 310 315 320  
 Gln Ser Val Asn Ile Asp Thr Lys Glu Pro Tyr Lys Ala Ser Val Glu  
 325 330 335  
 Arg Ser Asp Ser Thr Ala Val Pro Ala Ala Ser Val Val Cys Glu Ala  
 340 345 350  
 Val Val Ala Thr Glu Val Ala Lys Ala Met Leu Glu Lys Phe Asp Ser  
 355 360 365  
 Asp Ser Phe Glu Gln Met Lys Glu Ala Val Lys Arg Tyr Arg Leu Tyr

370  
Thr Gln Asn Phe  
385

375

380

<210> 44  
<211> 364  
<212> PRT  
<213> Enterococcus faecalis

<400> 44  
Met Lys Lys Arg Ile Leu Ile Val Gly Leu Gly Leu Ile Gly Ser Ser  
1 5 10 15  
Leu Ala Leu Cys Ile Lys Lys Gly His Pro Asn Ser Glu Ile Ile Gly  
20 25 30  
Phe Asp Asn Gln Ala Glu Ala Thr Glu Phe Ala Lys Lys Thr Gly Leu  
35 40 45  
Ile Asp Glu Ile Ala Glu Ser Leu Thr Ser Gly Ala Arg Arg Ala Glu  
50 55 60  
Ile Ile Phe Leu Cys Ser Pro Val Lys Ala Thr Leu Val Gln Leu Glu  
65 70 75 80  
Glu Leu Asn Gln Leu Ser Leu Glu Thr Ala Leu Ile Thr Asp Val Gly  
85 90 95  
Ser Thr Lys Val Glu Ile Asn Gln Leu Ala Thr Lys Leu Asn Met Lys  
100 105 110  
Asn Phe Ile Gly Gly His Pro Met Ala Gly Ser His Lys Ser Gly Val  
115 120 125  
Thr Ala Ala Asp Glu Arg Leu Phe Glu Asn Ala Tyr Tyr Ile Phe Thr  
130 135 140  
Asp Asp His Gly Glu Lys Asn Lys Gln Ile Gln Glu Leu Gln Thr Leu  
145 150 155 160  
Leu Lys Gly Thr His Ala Lys Phe Ile Thr Met Pro Ala Gln Glu His  
165 170 175  
Asp Glu Ile Thr Gly Ala Leu Ser His Leu Pro His Ile Val Ala Ala  
180 185 190  
Ala Leu Val Asn Glu Ser Gln Gln Leu Asn Thr Thr Tyr Pro Arg Ala  
195 200 205  
Gln Gln Leu Ala Ala Gly Gly Phe Arg Asp Ile Thr Arg Ile Ala Ser  
210 215 220  
Ser Asp Ala Thr Met Trp Thr Asp Ile Leu Leu Ser Asn Arg Leu Val  
225 230 235 240  
Leu Leu Asp Leu Leu Glu Asn Trp Gln Lys Glu Met Thr Thr Val Cys  
245 250 255  
Gln Trp Leu Thr Glu Lys Asn Ala Pro Ala Ile Arg Asn Phe Phe Asp  
260 265 270  
Lys Ala Lys Glu Thr Arg Ala Gln Leu Pro Ile His Lys Glu Gly Ala  
275 280 285  
Ile Pro Ala Phe Tyr Asp Leu Phe Val Asp Val Pro Asp Gln Pro Gly  
290 295 300  
Ile Ile Ala Glu Ile Thr Gln Ile Leu Gly Glu Ala Asp Leu Ser Leu  
305 310 315 320  
Thr Asn Ile Lys Ile Leu Glu Thr Arg Glu Glu Ile Tyr Gly Ile Leu  
325 330 335  
Gln Leu Ser Phe Lys Asn Gln Pro Asp Cys Gln Ala Ala Lys Gln Ile  
340 345 350  
Leu Ser Lys Lys Thr Asn Tyr Thr Cys Tyr Glu Lys  
355 360

<210> 45  
 <211> 428  
 <212> PRT  
 <213> Enterococcus faecalis

<400> 45  
 Met Arg Val Gln Leu Arg Thr Asn Val Lys His Leu Gln Gly Thr Leu  
 1 5 10 15  
 Met Val Pro Ser Asp Lys Ser Ile Ser His Arg Ser Ile Met Phe Gly  
 20 25 30  
 Ala Ile Ser Ser Gly Lys Thr Thr Ile Thr Asn Phe Leu Arg Gly Glu  
 35 40 45  
 Asp Cys Leu Ser Thr Leu Ala Phe Arg Ser Leu Gly Val Asn Ile  
 50 55 60  
 Glu Asp Asp Gly Thr Thr Ile Thr Val Glu Gly Arg Gly Phe Ala Gly  
 65 70 75 80  
 Leu Lys Lys Ala Lys Asn Thr Ile Asp Val Gly Asn Ser Gly Thr Thr  
 85 90 95  
 Ile Arg Leu Met Leu Gly Ile Leu Ala Gly Cys Pro Phe Glu Thr Arg  
 100 105 110  
 Leu Ala Gly Asp Ala Ser Ile Ala Lys Arg Pro Met Asn Arg Val Met  
 115 120 125  
 Leu Pro Leu Asn Gln Met Gly Ala Glu Cys Gln Gly Val Gln Gln Thr  
 130 135 140  
 Glu Phe Pro Pro Ile Ser Ile Arg Gly Thr Gln Asn Leu Gln Pro Ile  
 145 150 155 160  
 Asp Tyr Thr Met Pro Val Ala Ser Ala Gln Val Lys Ser Ala Ile Leu  
 165 170 175  
 Phe Ala Ala Leu Gln Ala Glu Gly Thr Ser Val Val Val Glu Lys Glu  
 180 185 190  
 Lys Thr Arg Asp His Thr Glu Glu Met Ile Arg Gln Phe Gly Gly Thr  
 195 200 205  
 Leu Glu Val Asp Gly Lys Lys Ile Met Leu Thr Gly Pro Gln Gln Leu  
 210 215 220  
 Thr Gly Gln Asn Val Val Val Pro Gly Asp Ile Ser Ser Ala Ala Phe  
 225 230 235 240  
 Phe Leu Val Ala Gly Leu Val Val Pro Asp Ser Glu Ile Leu Leu Lys  
 245 250 255  
 Asn Val Gly Leu Asn Gln Thr Arg Thr Gly Ile Leu Asp Val Ile Lys  
 260 265 270  
 Asn Met Gly Gly Ser Val Thr Ile Leu Asn Glu Asp Glu Ala Asn His  
 275 280 285  
 Ser Gly Asp Leu Leu Val Lys Thr Ser Gln Leu Thr Ala Thr Glu Ile  
 290 295 300  
 Gly Gly Ala Ile Ile Pro Arg Leu Ile Asp Glu Leu Pro Ile Ile Ala  
 305 310 315 320  
 Leu Leu Ala Thr Gln Ala Thr Gly Thr Thr Ile Ile Arg Asp Ala Glu  
 325 330 335  
 Glu Leu Lys Val Lys Glu Thr Asn Arg Ile Asp Ala Val Ala Lys Glu  
 340 345 350  
 Leu Thr Ile Leu Gly Ala Asp Ile Thr Pro Thr Asp Asp Gly Leu Ile  
 355 360 365  
 Ile His Gly Pro Thr Ser Leu His Gly Gly Arg Val Thr Ser Tyr Gly  
 370 375 380  
 Asp His Arg Ile Gly Met Met Leu Gln Ile Ala Ala Leu Leu Val Lys  
 385 390 395 400  
 Glu Gly Thr Val Glu Leu Asp Lys Ala Glu Ala Val Ser Val Ser Tyr  
 405 410 415  
 Pro Ala Phe Phe Asp Asp Leu Glu Arg Leu Ser Cys

<210> 46  
 <211> 168  
 <212> PRT  
 <213> Enterococcus faecalis

<400> 46  
 Met Glu Ser Ile Val Leu Ile Gly Phe Met Gly Ala Gly Lys Thr Thr  
 1 5 10 15  
 Ile Gly Gln Ser Leu Ala Asn Lys Leu Lys Met Pro His Leu Asp Leu  
 20 25 30  
 Asp Thr Ala Leu Ile Glu Lys Ile Gly Arg Ser Ile Pro Asp Tyr Phe  
 35 40 45  
 Glu Lys Tyr Gly Glu Ala Ala Phe Arg Glu Gln Glu Thr Gln Leu Leu  
 50 55 60  
 Lys Glu Leu Ser Lys Asn Thr Ala Val Leu Ser Thr Gly Gly Gly Ile  
 65 70 75 80  
 Val Val Gly Pro Glu Asn Arg Ser Leu Leu Lys Ser Phe Gln Gln Val  
 85 90 95  
 Ile Tyr Leu His Ala Thr Pro Glu Glu Leu Leu Lys Arg Ile Thr Glu  
 100 105 110  
 Asp Thr Glu Asn Gln Arg Pro Leu Ala Ile Glu Arg Ser Ser Lys Glu  
 115 120 125  
 Ile Ile Thr Leu Phe Glu Ser Arg Lys Asn Phe Tyr Glu Glu Cys Ala  
 130 135 140  
 Lys Met Thr Ile Asp Thr Thr Asn Arg Ser Pro Glu Glu Ile Ile Asn  
 145 150 155 160  
 Glu Ile Leu Gln Gln Leu Lys Glu  
 165

<210> 47  
 <211> 282  
 <212> PRT  
 <213> Enterococcus faecalis

<400> 47  
 Met Lys Val Gly Tyr Leu Gly Pro Ile Gly Ser Phe Thr Tyr Ser Ala  
 1 5 10 15  
 Thr Leu Ala Ala Phe Pro Glu Ala Thr Leu Met Pro Tyr Ala Ser Ile  
 20 25 30  
 Pro Ala Cys Leu Lys Ala Ile Glu Gln Gln Glu Val Ala Trp Ser Ile  
 35 40 45  
 Ile Pro Ile Glu Asn Thr Ile Glu Gly Thr Val Asn Ala Ser Ile Asp  
 50 55 60  
 Tyr Leu Tyr His Gln Ala Gln Leu Pro Val Gln Ala Glu Leu Val Leu  
 65 70 75 80  
 Pro Ile Gln Gln Gln Leu Met Val Ala Lys Glu Asn Gln Ala Ile Trp  
 85 90 95  
 Gln Gln Ser Gln Lys Ile Leu Ser His Pro Gln Ala Leu Ala Gln Ser  
 100 105 110  
 Gln Met Phe Leu Glu Lys Asn Phe Pro Glu Ala Ile Leu Glu Ala Thr  
 115 120 125  
 Pro Ser Thr Ala Tyr Ala Ala Lys Tyr Ile Ala Glu His Pro Glu Leu  
 130 135 140  
 Pro Phe Ala Ala Ile Ala Pro Lys Leu Ser Ala Glu Met Tyr Asp Leu  
 145 150 155 160

Thr	Ile	Val	Glu	Lys	Asn	Ile	Gln	Asp	Leu	Ser	Val	Asn	Gln	Thr	Arg
				165					170					175	
Phe	Trp	Val	Leu	Gly	Ser	Glu	Asn	Leu	Ala	Ile	Ser	Phe	Pro	Leu	Ser
			180					185					190		
Glu	Lys	Lys	Ile	Thr	Leu	Ala	Ile	Thr	Met	Pro	Ser	Asn	Val	Pro	Gly
		195					200					205			
Ser	Leu	His	Lys	Val	Leu	Ser	Val	Phe	Ser	Trp	Arg	Gly	Ile	Asn	Leu
	210					215					220				
Ser	Lys	Ile	Glu	Ser	Arg	Pro	Leu	Lys	Thr	Lys	Leu	Gly	Glu	Tyr	Phe
225					230				235						240
Phe	Leu	Met	Asp	Leu	Val	Lys	Asp	Gln	Pro	Glu	Lys	Leu	Ile	Glu	Ala
			245					250						255	
Ala	Leu	Thr	Glu	Leu	Glu	Leu	Ile	Gly	Ala	Glu	Ile	Lys	Ile	Leu	Gly
			260				265						270		
Asp	Tyr	Pro	Ile	Tyr	Val	Leu	Ser	Thr	Leu						
		275					280								